

DRAFT

UNIFIRST REMEDIAL ACTION CONSTRUCTION COMPLETION REPORT

Northeast Quadrant of the Wells G & II Site Woburn, Massachusetts

PREPARED FOR

UniFirst Corporation.

SUBMITTED TO

U.S. Environmental Protection Agency Region I

December 9, 1992

The Johnson Company, Inc. 5 State Street
Montpelier, Vermont 05603

Cloud SMOS

587787

The construction and scheduling of various components was coordinated by both EPC and JCO.

The construction sequence is summarized in Table 3 below.

TABLE 3 CONSTRUCTION SEQUENCE

DATE(S)	ACTIVITY:	RESPONSIBLE CONTRACTOR	
8/24/92	Exploratory test pits for buried pipe installations	Franklin Environmental	
8/25 - 8/28/92	Installation of floor trench drains, demolition and excavation for pipe penetrations into building	Franklin Environmental	
9/1 - 9/14/92	Installation of influent and discharge pipe	Franklin Environmental	
9/1 - 9/14/92	Treatment area building improvements	Group Nine	
9/1 - 9/30/92	Electrical installations and modifications	Ideal Electric	
9/16/92	Well pump installation	D.L. Maher	
9/14 - 9/30/92	Plumbing installations and modifications	BC Plumbing and Heating	
10/14/92 - 10/28/92	Repaying and site restoration	Bardon Trimount Paving (Subcontractor to Franklin)	

Periodic inspections of the construction work were performed by Johnson Company personnel. Copies of daily inspection reports from those activities are included in Appendix A.

The influent and discharge pipelines were pressure tested after installation per the construction specifications. The tests for the influent and discharge pipelines were performed by John Hoadley and Sons, Inc. and Sewer Tech, Inc., respectively. Copies of the results of the pressure tests are included in Appendix B.

Some soils testing was performed on the compacted backfill during the pipeline construction. The testing was not accomplished as frequently as desired due to several factors. The soil collected from the exploratory test pits which was tested to develop a relationship between percent compaction and optimum dry density did not reflect the majority of the soil materials encountered during construction. A majority of the soils encountered during the discharge pipe construction had been placed as fill, presumably when

the site was developed, and therefore varied considerably. Contaminated soil was encountered during the influent pipe trench excavation which required the creation of an exclusion zone. The soil testing technician on site that day was not OSHA trained for such conditions and therefore was not utilized. As a result of these conditions, engineering judgement was utilized to evaluate the adequacy of the backfill compaction in a majority of the trench locations. Soil testing reports that were developed, were prepared by UTS of Massachusetts, Inc. and are provided in Appendix B.

The majority of the construction work was completed by September 23, 1992, with the only remaining items at that time being miscellaneous plumbing installations.

The pre-operation checking and testing of the treatment system and control functions were performed from September 23 to September 29, 1992. Results of the pre-operation checking are summarized in Section 7.0. The treatment system was started up the afternoon of September 30, 1992.

4.0 DEVIATIONS FROM FINAL DESIGN

The treatment plant was constructed in general accordance with the approved plans and specifications with the exception of the following minor deviations from and additions to the approved plans which did occur during construction.

- Influent and discharge pipes were installed under the building footing instead of through the foundation wall. Relative footing elevations allowed this change to be made which eliminated the need to core through the concrete foundation wall. This modification allowed maximum cover over the pipes and easier and preferred installation.
- The hydrogen peroxide dike was revised to replace the pressure treated lumber components and utilize PVC bar stock to fasten the containment liner. This was done due to the potential for the lumber to be exposed to and react with hydrogen peroxide that may be spilled during long term operation, thereby creating a hazard to the system operator. The design was modified to include non-reactive materials where the potential for exposure to the hydrogen peroxide exists.
- Make-up air vents with motor operated louvers were installed in conjunction with the
 ventilation fan. This addition corrected a deficiency in the treatment room ventilation
 system which was previously overlooked.
- The power supply circuit for the U.V. Chemical Oxidation system was revised. The existing circuiting (from the May 1990 pilot test) included a transformer that provided 480 volt output from the available site voltage of 208. This transformer was removed and a pair of transformers were installed to provide 240 volt output required for the new U.V. Chemical Oxidation unit that was purchased for the long term treatment system.

- The remote starters for the backwash pump (P4) and the re-injection pump (P5) were revised from their proposed fixed, floor mounted positions. The installed starters are suspended on cable from junction boxes above the pumps with appropriate strain relief devices employed at both ends. The installed remote pump starter arrangement allows for greater operating freedom during pump start-up and easier access to the pumps for maintenance and other purposes.
- A carbon tank utilized during the pilot test of May 1990 was intended to be reused as the lead carbon tank in the long-term treatment system. During the system testing period it was revealed that the integrity of the existing tank walls had been compromised due to interior corrosion during its storage since the pilot test. The tank leaked at the top of the side shell along the weld at this point. Close inspection revealed the corrosion was extensive enough that successful repair by welding was unlikely. A replacement carbon tank was ordered and the carbon media transferred to it, from the existing tank. This new tank was put on line as the lead carbon tank on October 13, 1992.
- The well head detail at the pumping well (UC22) incorporates a 1-inch polyethylene pipe through the well head cap to allow manual water measurements. A locking guard was welded onto the cap to limit access to this level monitoring sleeve. The locking cap was installed to prevent unauthorized access to the level monitoring pipe.

5.0 HEALTH AND SAFETY

A Site Health and Safety Plan (HSP) was prepared for use during the Remedial Action Construction. The HSP was prepared and administered by JCO. Any construction personnel who had the potential to be exposed to contaminated soil or groundwater were required to have received 40 hour training as per 29 CFR1910.120. Proof of training was required of the various construction personnel and their training certificates kept filed on-site during the construction. Air monitoring was performed during all intrusive construction activities at the site. The organic vapor meter used for air monitoring was calibrated daily. Daily Health and Safety meetings were conducted most mornings prior to the start of work.

The air monitoring during construction indicated that the work could proceed in Level D personal protective equipment (PPE) with one exception described as follows. On August 31, 1992 an area of contaminated soil was encountered during trench excavation for the influent trench. All workers in the area of the trench were evacuated. JCO personnel upgraded to Level C PPE and monitored removal of the contaminated soil which was temporarily stock-piled on site, covered with polyethylene sheeting, and ultimately placed in roll off containers on the site for storage. The bulk of the contaminated soil was removed with a backhoe. Some hand excavation was performed by Franklin Environmental personnel in Level C PPE. The level of volatile organics in the breathing zone was generally below the action level for

upgrading to Level C PPE as the breathing zone was outside the confines of the trench. All hand excavation and associated air monitoring were performed in Level C PPE. The following day, after the contaminated soil had been stockpiled and covered with polyethylene sheeting, air monitoring in the trench indicated that the work could be performed in Level D PPE.

Two minor injuries occurred during the remedial action construction. Neither were related to soil or groundwater contamination at the site. These incidents are described as follows:

The first injury, on August 26, 1992, occurred during the concrete sawing for the floor trench drain installation. A piece of the diamond edge saw blade broke off and struck a Franklin Environmental worker in the back. The worker received a small abrasion and bruise from the impact. First aid was administered to the wound and an Accident/Incident Investigation Report Form filled out. The employee continued work and was advised to watch for any signs of infection.

The second incident occurred while a worker from D. L. Maher was cutting the UC-22 well casing with a torch for installation of the pitless adaptor on September 16, 1992. A piece of steel being cut from the casing flew off and struck the torch operator in the ear. After initial discomfort from the hot metal, the employee was able to continue work. He was advised to have the injury examined by his doctor and an Accident/Incident Investigation Report Form was completed.

6.0 LOCAL PERMITTING AND APPROVALS

The remedial action construction was completed under the U.S. EPA Superfund program. As a result, the EPA jurisdiction of this project superseded that of all other agencies as long as the substantive requirements of all laws and regulations are complied with. However, all normally appropriate local permits and approvals were sought and obtained for this project. This included a building permit, and Fire Department, Public Works, Board of Health and Conservation Commission review. Copies of the relevant permits and reports are included in Appendix C. Following is a chronological description of the local review and permitting that was accomplished for this project.

On September 3, 1992, Lt. Matheson of the Woburn Fire Department (WFD) inspected the site and provided, in writing, the requirements of the project with regard to fire protection and safety.

Also on September 3, 1992, an application was submitted to the City of Woburn for a building permit (see Appendix C). On September 8, 1992, Jeff Lawson of EPC and Joel Behrsing of JCO met with

APPENDIX A CONSTRUCTION INSPECTION REPORTS

WEATHER P. CLOUDY TEMPERATURE SOFF TIME G:30 - 19:00	REF. LOC. 1-074 DATE _ 8/31/92 REPORT NO(CALENDAR I	DAYS CONTRACT DAYS CONSUMED DAYS REMAINING
MUNICIPALITY	NKLIN ENVIRO	JUGNL	SEYCVICES	SITE (FES)
LABOR	EQUI	PMENT		WORK
GEN. SUPER. FOREMAN EQUIP. OPER. PIPELAYER LABORER 2- MASON DRIVER UNIF.POLICE STEAL DAILEY OPERATOR TOHN CONDEXA LAMES SAYLERS MARIO FERREIRA TOM MCCOY	BACKHOE / EXC. LOADER / BACKHOE F.E.LOADER BULLDOZER GRADER PAVER ROLLER TRUCK COMPACTOR COMPRESSOR PVT. SAW	PLATE	790	
NAME(S)	VISITORS	TO SITE REPRESI	ENTING	
DESCRIPTION OF PROJECT	DAVEMENT (STD	CEPILIN	G BEDDIN	6 SAND
~9:30 START TRENCHING @ UC-ZZ (HECK IST BUCKET AND 3 FT. DOWN O.OPPM @ ~4.5 FT BGS O.OPPM ABOUT 10 FT. FROM WELL HIT OLD CONST. DEBRIS. REBAR, CABLE CONCRETE ONE LARGE PIECE; CAN'T MOVE I' A FT BELOW GRADE - DECIDE TO LEAVE - ADD G' FILL ABOVE NATIVE GRADE CUT OUT REBAR W/DEMOLITION SAW ~10:50 ~40-50 FT HIT ANOTHER LARGE PIECE OF REINF. CONCRETE TOO SHALLOW REMOVE ~ 1.0 FT SQUARE 10-12" THICK				
P 11:30 18 PPM	BEFORE PUT. RKERS TO EVACUA C SOIL O.1 FOR LUNCH	ATE TRI	ENCH	
BY:			PAGE_	
DAILY PROJECT SITE INSPE			nmental Scie	COMPANY, INC. nces and Engineering R, VERMONT

WEATHER MOSTLY SUNDY REF. LOC. 1-07	41-1			
TEMPERATURE DATE 8/31/				
TIME REPORT NO				
MUNICIPALITY				
PROJECT NAME WELLS GH	UNI-FIRST SITE			
CONTRACTOR				
SUB CONTRACTOR				
· · · · · · · · · · · · · · · · · · ·				
DESCRIPTION OF PROJECT ACTIVITIES AND	OTHER OBSERVATIONS			
CILISA J-B/JTL INVESTIGATE: I	OIG 4-6" DEEP HOLE BOTTOM TRENCH			
- 33 ppm 0.5 ppm BR	$\Delta = (3)(2)(2)(2)$			
TROPPED TO 30-50 PFM	DIY ppm BRENTITING ZONE			
` ·				
DONNED RESPIRATOR - HAVE	EXC. REMOVE TAN SOIL			
TO GREY SOIL - BUCKET OF	GREY SOIL 5000 ppm -7 150 ppm			
STOCKPILE ON PLASTIC	BY RETAINING WHO.			
DISCUSS W/ STI : DECIDE ID	REMOVE AS MUCH AS POSSIBLE			
AREA OF DIPE COASTRU	CHAN FOR WORKER STEETY			
▲ 「 」が、 「 もちょうさんだい かん きょうしょ はいよう しゅおき しきだい しゅうじょう ちゅうしゅう しょうごう				
SELECTIVELY - REMOVE GREY	SOIL STOCKPILE ON POLY			
THIN (2-4") BLACK BAND	OF MATERIAL HAVE TOM & MARIO ALSO TYVEK / BODTS / GLOVES			
I WATORIT	V OF BLACK MATERIAL FIRSMI			
TRANCH SIDES HESD FIRE	BRICK IN BLACK ON N. SIDE TRENCH.			
1				
~14142 CONTINUED EXC. MONI	TOR EACH BUCKET / STOCKPILE ON POLY			
25.44 7 600 1070	PUT. BELOW ZND PUT. LAYER 35 ppm			
SCHOOL REMED	AREA OUT FRONT POLY LINED			
CONTINUÉ EXC. MON	TOP BUCKETS STOCKPILE OUT			
FRONT, < PPM IN	BEGATHING FONES			
CONTINUE TO STOCK	PILE SPOIL IN BERMED AREA			
	< 2-3 ppm. THEN PLACED NEVT			
TO TRENCH FOR BAC				
11.40 STOP WAKE.				
EST. SOIL PILES	25 yds CACH PILE			
SEZURE SITE BLOCK	ACCESS TO TRENCH WITH EQUIP.			
THE CAVITON TAPE	EITHER SIDE OF FIRE LANE.			
BY: PAGE Z OF Z				
JOEL BEHRSING				
DAILY PROJECT REPORT	THE JOHNSON COMPANY, INC.			
SITE INSPECTION	Environmental Sciences and Engineering			
CONTINUATION	MONTPELIER, VERMONT			
001111101111011				

WEATHER MOSTLY SUNNY TEMPERATURE 75-80'F TIME 6:45 - 18:00	REF. LOC. 1-07-1 DATE9/1/92 REPORT NO7	<u> </u>	CALENDAR [DAYS CONTRACT DAYS CONSUMED DAYS REMAINING
MUNICIPALITY WOBURN MA. PROJECT NAME WELLS GIH - N.E. QUAD / UNIFIRST SITE CONTRACTOR FRANKLIN ENVIRONMENTAL SERVICES (FES) SUB CONTRACTOR IDEAL ELECTRIC				
LABOR	EQUI	PMENŢ		WORK
GEN. SUPER FOREMAN EQUIP. OPER.' PIPELAYER LABORER MASON DRIVER UNIF.POLICE	COMPACTOR	J.P. PLATE		SITE WORK EXCAVATION UTILITIES PIPE MANHOLES SHEETING BACKFILL RESTORATION TESTING PIPE TESTING MH HOUSE: SERV PAVING SEEDING
VISITORS TO SITE REPRESENTING GRETA STALEY / JEFF LAWSON EPC ED BRADLEY MIKE MOORE VISITORS TO SITE REPRESENTING FES ENSR				
DESCRIPTION OF PROJECT ACTIVITIES AND OTHER OBSERVATIONS FES PRENSENT - JIM SAYLOR; TOM MCCOY; PAUL END; MARIO FERREIRA MIKE ENGLAND IDEAL ELEC. JIM HARDIN				
ON-SITE 6:45 CALIBRATE OVM; FES @ 17:00 AM BRIEF HES METTING; NO ONE IN TRENCH UNTIL I MONITOR. @ 7:33 ONE 3 PPM READING @ SOIL ON TRENCH SIDE O.O PPM IN BREATHING FORE, CAUTION WORKERS ABAINST EXPOSE FRESH SOIL IE DON'T SCRAPE TRENCH SIDE				
CONTINUED MONITOR IN TRENCH OF BREATHING PONE WHILE WORKERS SPREAD BEDDING SAND. DIO PPM WORKTUG ON GALV. SECTION TO GO UNDER FRESTING AND THRU SLAG DECYPICIAN GETTING CONDUIT READY BY: PAGE 1 OF 2				
DAILY PROJECT REPORT SITE INSPECTION Environmental Sciences and Engineeri MONTPELIER, VERMONT			ices and Engineering	

WEATHER TEMPERATURE TIME	REF. LOC	
MUNICIPALITY PROJECT NAME CONTRACTOR SUB CONTRACTOR		UNI FIRST SITE
DESCRIPTION OF PROJECT	CT ACTIVITIES AND C	THER OBSERVATIONS
MEASURE USING N	45°S LOCATION ATIVE SOIL ~ (0-12"	THEUST BLOCKS @ 45°5) / PIPE FROM FENCE PICKED OF ROCKS / PVT. LIFTS / 4 PASSES W/COMPACTOR
BACKFILLS IN AREA NEED	PAVED PAVED DETECTABLE	WARNING TAPE / FES WILL
MS:30 BREAK (FES) FOR D	AY LFR AIPE WHERE NOT BACKFILLED
WR(TE	UNTIL ISSO	SKETCH AS-BLT LOCATION.
BY: Al Bd		PAGE 2 OF 2
DAILY PROJECT SITE INSPECTONTINUA	стои	THE JOHNSON COMPANY, INC. Environmental Sciences and Engineering MONTPELIER, VERMONT

INSPECT, DWG

			Committee of the commit	and the contraction of the contr
WEATHER MOSTLY SUNNY	REF. LOC. 1-0	741-1	CALENDAR I	DAYS CONTRACT
WEATHER 16515	DATE 9/2/9	2	CALENDAR	DAYS CONSUMED
TEMPERATURE 15°F				
TIME 7:00 - 18:00	REPORT NO	<u> </u>	CALENDAR I	DAYS REMAINING
	<u> </u>			
MUNICIPALITY PROJECT NAME	WOBURD , MA.	_		
DROJECT NAME	15 GdH N.E.	JAL.	/ UNI FIR	ST SITE
CONTRACTORERA	14 10 Tollie 6	CONVE	4	
		CEV(OC		
SUB CONTRACTOR :				
				<u>,</u>
LABOR	FOLI	IPMENT		WORK
LABOR	LQO			WORK -
		NO.	SIZE	
	}	•		
GEN. SUPER.				SITE WORK
FOREMAN	LOADER/BACKHOE			EXCAVATION
COLID OPER	F.E.LOADER			UTILITIES
GEN. SUPER FOREMAN EQUIP. OPER PIPELAYER	BULLDOZER			PIPE
1				MANHOLES
LABORER	GRADER			
MASON	PAVER			SHEETING
	ROLLER		_ 	SHEETING
DRIVER	TRUCK		·	RESTORATION
JOHN LEIGHTON	COMPACTOR			TESTING PIPE
JOHN COBERA (AM)	LOOMI ACTOR			TESTING MH
	COMPRESSOR			PED HING MIN
TOM MCCOY	BOBCAN	<u> </u>		TESTING MH HOUSE SERV
JIM. SAYLORS			- ,	[[[] [] [] [] [] [] [] [] []
MARRIO FERRERIA			The state of the s	SEEDING
	<u> </u>			
	VISITORS	TO SITE		1
		REPRESE		·
NAME(S)		אנראנ 30	10 11140	
<u> </u>	· · · · · · · · · · · · · · · · · · ·			
DESCRIPTION OF PROJECT ACTIVITIES AND OTHER OBSERVATIONS				
DN-C-TIC 7100	AM W/FRANK	CLIN +	tes MELTING	
ON-SITE 7:00 AM W/FRANKLIN HES MELTING ~ 7:54 TWO TRAILER DUMP LOADS ~ 1844 ARRIVED				
1 THE TRACER DUMP COADS ~ 1070				
SHOOT ELEVS. TOP OF INF. PIPE FROM WILL TO				
SHOOT ELG	VS. TOP OF	104	PIPE PRO	Well 18
OVERLAP W/THAT FROM BOOW				
WORKERS PLACING IMPORTED BACKFILL				
~ 8:55 NEW WELL PUMP ARRIVES VIA UPS				
9'20 CHECK TRENCH WHERE NATIVE BKFILL O. DPFM				
9.60 CHECK HOUSE! WARRE NATIVE ON THE				
PLACING DETECTABLE WARNING TAPE OVER PIPE.				
		D.A 1 -=		
11:30 GET READING OFF BACKFILL; HAVE BUCKET PLACED				
NATIVE SPOIL; STOCKPILE IN N. PILE; CONTINUE TO MONITOR'				
NATIVE SPOIL STOCKPILE IN NIPILE : SOIL ADDED ~ 15 Vals				
The state of the s				
PAGE OF				
BY:				
	·	· .	<u> </u>	
DAILY PROJECT				COMPANY, INC.
SITE INSPEC				
	STICK	Environ-	•	
אווב וויארבנ	CTION	Environ	•	ces and Engineering

TEMPERATURE	REF. LOC	Z		
MUNICIPALITY			ξ .	
DESCRIPTION OF PROJECT	•			
INF. TRENCH				
~13:40 NEW				
BACKFILLI FROM MEM	NG NATIVE WHERE CON	T. SOILS, O.	Oppm in s	mnt.
-15:20 PVT. 3.	RATE			ERMINUS
MONITO	$\sim 10^{\circ}$	DO OF STORA	GE DEPOT	
16'15 STOP				
10:30 SECUR	E SITE GO	OVER 5	ćHEDI ETC.	
18:00 ~ 18:15 LOCK		·		-
	,		· · · · · · · · · · · · · · · · · · ·	
	Institute of the second			
BY: Vil 3	el		PAGE	OF
DAILY PROJECT SITE INSPECT CONTINUATI	пои	Ènvironmenta	INSON COMPAN' I Sciences and TPELIER, VERMO	Engineering

INSPECT.DWG

WEATHER RAINY TEMPERATURE - 10°F TIME 6:00 - 18:00	REF. LOC. 1-074 DATE913/9 REPORT NO	2	CALENDAR [DAYS CONTRACT DAYS CONSUMED DAYS REMAINING
MUNICIPALITY WOBURN, MA. PROJECT NAME WELLS GEH N.E. QUAD. /UNI-1ST SITE CONTRACTOR FRANKLIN ENVIR. SERVICES SUB CONTRACTOR				
LABOR EQUIPMENT WORK			WORK	
GEN. SUPER. FOREMAN EQUIP. OPER. PIPELAYER LABORER MASON DRIVER UNIF.POLICE J. LEIGHTON J: CAPERA J. SAY LORS M. FERREIRA M. ENGLAND B. WALLACE	BACKHOE LOADER/BACKHOE F.E.LOADER BULLDOZER GRADER PAVER' ROLLER TRUCK COMPACTOR COMPRESSOR Z - ROLL-OFF S	44 40		SITE WORK
VISITORS TO SITE NAME(S) REPRESENTING				
DESCRIPTION OF PROJECT ACTIVITIES AND OTHER OBSERVATIONS 6:00 AM DPEN GATE FOR 1ST ROLLOFF 6:30 (ALIBRATE ONM G.40 ZND ROLLOFF BJOIN PLACING SOUTH PILE INTO IST ROLLOFF 25 PPM ON SOIL < IN BREATHING JONE 7:35 FINISH LOADING IST ROLLOFF WI/BAIDGAT ~B:00 HIME BOBGAT START MONING IN PILE TO ROLLOFF Z 5D PPM IN SOIL HAVE OPERATOR WEAR RESPIRATOR ~B:10 SHUTDOWN SOIL MONING STARTING TO RAIN GETTING SUSTAINED (290 Sec) 1-2 PPM READINGS IN AREA BEHAND (NOTH) OF BLOG NO WIND COVER PILE BACK UP W/PDLY 7):25 MONITOR SUBSOIL REPORT BY: DAILY PROJECT REPORT THE JOHNSON COMPANY, INC.				
DAILY PROJECT REPORT SITE INSPECTION		THE JOHNSON COMPANY, INC. Environmental Sciences and Engineering MONTPELIER, VERMONT		

WEATHER REF. LOC.	
TEMPERATURE DATE 9/3/9	2
TIME REPORT NO	<u>, , , , , , , , , , , , , , , , , , , </u>
MUNICIPALITY	
PROJECT NAME WOLLS 64	
CONTRACTOR	
SUB CONTRACTOR	
DESCRIPTION OF PROJECT ACTIVITIES AND	·
	PVT. / COMMONCE TRANCH EXC.
	WOBYRN F.D.
12:30 RAINING HARDER.	
MONITORING TRENC	PACE IN BACK OF TRUCK
TRENCH EXC. T	O GRADE
BEDDING PLACED	1/3 OF LENGHT
15,40	A CO TO THE TARK
	ICH WE EQUIP. & WARNING TAPE.
MOST W/ GROVA	1 STL
18:00 DISCUSS AUTO	VALUE WI PLUMBER AND JRB
· . :	\
	· · · · · · · · · · · · · · · · · · ·
<u> </u>	
BY: 120 has	_ PAGE Z OF Z
DAILY PROJECT REPORT	THE JOHNSON COMPANY, INC.
SITE INSPECTION	Environmental Sciences and Engineering
CONTINUATION	MONTPELIER, VERMONT
CONTINUATION	

INSPECT.DWG